

EDGAR J. BUTTENHEIM
President

THEODORE REED KENDALL
Editor

O. E. POTTER
Associate Editor

P. C. FORD
Asst. to President

HERBERT K. SAXE
Treasurer

MYRON MACLEOD
Advertising Manager

Vol. XXII
No. 1

Contractors and Engineers Monthly

January,
1931

Published Monthly at 470 Fourth Ave., New York, by Buttenheim-Dix Publishing Corporation.

Daily News Plaza, Chicago
Tom Dix, Vice President

642 Hanna Building, Cleveland
George Conover, Manager

X753208

TABLE OF CONTENTS

ACCOUNTING	LAW AND LITIGATION
Minimizing Your Income Tax..... 79	Legal Points for Contractors..... 119
BOOK REVIEWS	MATERIAL HANDLING
Who's Who in Engineering..... 125	Use of Containers in Handling Materials of Construction 85
Non-Interpolating Logarithms..... 125	ROAD CONSTRUCTION
Studies in Reinforced Concrete..... 126	It's the Little Things That Count and Team Work That Produces..... 61
CONSTRUCTION BRIEFS	
How the Other Fellow Did It..... 90	Heavy Going Over Old Subgrade..... 66
CONSTRUCTION INDUSTRY NEWS	Grading Mountain Highways in California..... 73
News of Manufacturers and Trade Associations..... 121	Novel Features of a 2-Strip Concrete Paving Job in the West Virginia Mountains 75
THE CONSULTING ENGINEER	Novel Sand-Asphalt Plant Set-Up..... 81
News of Consultants in the Civil Engineering Field..... 123	Costs and Methods on a Brick-on-Concrete Base Highway in Niagara County, N. Y. 87
DIESEL POWER	
Diesel Engines on Construction Work..... 69	ROAD SHOW—JANUARY 12-16
DISTRIBUTORS' BULLETIN BOARD	Notes of Exhibits..... 135
Distributors Who Have Recently Announced Changes in Their Accounts..... 121	SAFETY IN CONSTRUCTION
THE EDITOR COMMENTS	A Safety Idea from a Bay State Contractor..... 86
Personal Observations and Reflections..... 122	STATE HIGHWAY EXPENDITURES
ITEMS OF INTEREST	Reports from States for 1930 and 1931..... 92
The Record of Illinois in 1930 Road Construction..... 68	WHO'S WHO IN CONSTRUCTION
A Highway Contract of 1855..... 72	Reports from Active Contractors..... 100
Maintaining Steel Cutters on Hydraulic Dredges..... 118	WHO'S WHO AMONG MANUFACTURERS
The Proper Spirit..... 121	Portraits of Sales Executives..... 101
Catalogs for Contractors..... 164	

For Directory of Local Distributors of Contractors' Equipment, See Pages 167 to 194

Please advise the publishers if you find any inaccuracies in this list.

Where to Purchase

A comprehensive classification of the leading machinery and supply manufacturers arranged for the convenience of contractors, engineers and public officials who may wish to secure information about construction equipment. A star (*) before the manufacturer's name indicates that his advertisement appears in this issue. The Index of Advertisers faces the inside back cover. When writing to manufacturers please mention CONTRACTORS & ENGINEERS MONTHLY.

This index is published as an aid to the reader, but the publishers assume no responsibility for errors or omissions

Acetylene Welding Apparatus (See Welding Apparatus)

Admixtures, Concrete, Accelerating

- *Acqua-Pruf, Inc., New York
- *Columbia Products Co., Barberton, Ohio
- *Dow Chemical Co., Midland, Mich.
- *Solvay Sales Corp., New York
- Master Builders Co., Cleveland, Ohio
- Michigan Alkali Co., New York
- Truscon Laboratories, Detroit, Mich.

Admixtures, Concrete, for Workability

- Johns-Manville Co., New York

Agitator Bodies, Concrete (See Bodies)

Air Compressors (See Compressors)

Air Compressor Tanks (See Tanks)

Air Hose (See Hose)

Air Hose Couplings (see Couplings)

Air Lift Pumps (see Pumps)

Asphalt (See also Asphalt, Rock)

- *Standard Oil Co. of Ind., Chicago
- *Standard Oil Co. of N. Y., New York
- Atlantic Refining Co., Philadelphia
- Barber Asphalt Co., Philadelphia
- Gulf Refining Co., Pittsburgh, Pa.
- Pioneer Asphalt Co., Lawrenceville, Ill.
- Sinclair Refining Co., Chicago
- Standard Oil Co. of Cal., San Francisco
- Standard Oil Co. of La., New Orleans, La.
- Standard Oil Co. of N. J., Newark, N. J.
- Sun Oil Co., Pittsburgh, Pa.
- Texas Co., New York

Asphalt Block Paving (See Block Paving)

Asphalt Cutters (See Asphalt Tools, and Tools, Pneumatic)

Asphalt Distributors (See Distributors)

Asphalt, Emulsified

- American Bitumuls Co., Baltimore, Md.
- Flintkote Roads, Inc., Boston
- Headley Emulsified Prod. Co., Philadelphia

Asphalt for Curing Concrete

- *McEverlast, Inc., Los Angeles, Calif.
- Barber Asphalt Co., Philadelphia

Asphalt Kettles (See Kettles)

Asphalt Mixtures, Cold-Laid

- Amiesite Asphalt Co. of Amer., Philadelphia
- Colprovia Roads, Inc., New York

Asphalt Plants

- *Austin-Western Road Machy. Co., Chicago
- *Chausse Oil Burner Co., Elkhart, Ind.
- American Fin-Mix Co., Chicago
- Asphalt Equipment Co., Scottsdale, Pa.
- Barber Asphalt Co., Philadelphia
- Charleroi Iron Works, Charleroi, Pa.
- Cumner & Son Co., F. D., Cleveland, O.
- Faracey Mfg. Co., J. D., Cleveland, O.
- Hetherington & Berner, Indianapolis, Ind.
- Iowa Mfg. Co., Cedar Rapids, Iowa
- Macleod Co., Cincinnati, O.
- Madsen Iron Works, Huntington Park, Calif.
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Simplicity System Co., Chattanooga, Tenn.
- Warren Bros. Co., Boston, Mass.
- Western Wheeled Scraper Co., Aurora, Ill.

Asphalt Pouring Pots (See Pots)

Asphalt Road Finishers (See Finishers)

Asphalt, Rock

- Kentucky Rock Asphalt Co., Louisville, Ky.
- Natural Rock Asphalt Corp., Owensboro, Ky.
- Ohio Valley Rock Asphalt Co., Louisville, Ky.
- Utah Rock Asphalt Corp., Pueblo, Colo.
- Uvalde Rock Asphalt Co., San Antonio, Texas

Asphalt Rollers (See Rollers)

Asphalt Sprayers, Hand (See Sprayers)

Asphalt Spreaders (See Spreaders)

Asphalt Surface Heaters (See Heaters)

Asphalt Tools

- *Chausse Oil Burner Co., Elkhart, Ind.
- *Littleford Bros., Cincinnati, Ohio
- Acroil Burner Co., West New York, N. J.
- American Fork & Hoe Co., Cleveland, O.
- American Steel Works, Kansas City, Mo.
- Barber Asphalt Co., Philadelphia
- Cumner & Sons Co., F. D., Cleveland, O.
- Warren Bros. Co., Boston, Mass.

Augers, Earth, Power, Horizontal

- Young Engine Corp., Canton, Ohio

Augers, Post-Hole, Power

- Cook Co., A. D., Lawrenceburg, Ind.
- Highway Trailer Co., Edgerton, Wis.
- Loomis Machine Co., Tiffin, Ohio
- Salem Tool Co., Salem, Ohio
- Specialty Device Co., Cincinnati, O.
- W-K-M Co., Houston, Texas

Backfillers

- *Baker Mfg. Co., Springfield, Ill.
- *Bay City Shovels, Inc., Bay City, Mich.
- *General Wheelbarrow Co., Cleveland, Ohio
- *General Excavator Co., Merion, Ohio
- *Good Roads Machy. Co., Inc., Kentucky, Pa.
- *Inley Mfg. Co., Indianapolis, Ind.
- *Koehring Co., Milwaukee, Wis.
- *Lansing Co., Lansing, Mich.
- *Parsons Co., Newton, Iowa
- Astin Machy. Corp., Muskegon, Mich.
- Blair Mfg. Co., W. M., Chicago
- Buckeye Traction Shovel Co., Findlay, O.
- Bucyrus-Erie Co., Milwaukee, Wis.
- Byers Machine Co., Ravenna, Ohio
- Cleveland Trencher Co., Euclid, Ohio
- Construction Machy. Co., Waterloo, Iowa
- Harnischfeger Corp., Milwaukee, Wis.
- Keystone Driller Co., Beaver Falls, Pa.
- LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa
- Link-Belt Co., Chicago
- Miami Trailer-Scraper Co., Troy, Ohio
- Sidney Steel Scraper Co., Sidney, Ohio
- Slusser-McLean Scraper Co., Sidney, Ohio
- Star Drilling Machine Co., Akron, Ohio
- Universal Power Shovel Co., Detroit, Mich.
- Western Wheeled Scraper Co., Aurora, Ill.
- Willamette-Ersted Co., Portland, Ore.
- W-K-M Co., Houston, Texas

Bags, Paper, for Cement

- Arkell & Smith, Cansajoharie, N. Y.
- Phillips Co., Thos., Akron, Ohio
- Raymond Bag Co., Middletown, Ohio
- St. Regis Paper Co., New York
- Union Bag & Paper Co., New York

Bag Trucks (See Trucks)

Baling Presses (See Presses)

Bar Benders and Cutters (See Benders)

Barricades (See also Horses)

- Cleveland Steel Spec. Co., Cleveland, O.

Bar Ties (See Ties)

Batch Boxes (See Boxes)

Batchers

- *Blaw-Knox Co., Pittsburgh, Pa.
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- Beaumont Co., R. H., Philadelphia
- Erie Steel Const. Co., Erie, Pa.
- Johnson Co., C. S., Champaign, Ill.
- Macleod Co., Cincinnati, Ohio
- Madsen Iron Works, Huntington Pk., Calif.
- Smith Co., T. L., Milwaukee, Wis.
- Superior Engineering Co., Warren, Ohio

Bearings, Ball

- Ball & Roller Bearing Co., Danbury, Conn.
- Fafnir Bearing Co., New Britain, Conn.
- Gwilliam Co., Brooklyn, N. Y.
- Haynes Steellite Co., Kokomo, Ind.
- New Departure Mfg. Co., Bristol, Conn.
- S K F Industries, New York
- Strom Bearings Co., Chicago

Bearings, Roller

- Gwilliam Co., Brooklyn, N. Y.
- Hyatt Roller Bearing Co., Harrison, N. J.
- Inley Mfg. Co., Indianapolis, Ind.
- S K F Industries, New York
- Timken Roller Bearing Co., Canton, Ohio

Belt Conveyors (See Conveyors)

Belt Dressing (See Dressing)

Belts, Power Transmission

- *Chain Belt Co., Milwaukee, Wis.
- Buckner Process, Inc., Worcester, Mass.
- Dayton Rubber Mfg. Co., Dayton, Ohio
- Worthington Pump & Machy. Corp., New York

Benders and Cutters, Bar

- *Koehring Co., Milwaukee, Wis.
- *Ransome Concrete Machy. Co., Dunellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.

Bending Machines, Pipe

- American Pipe Bending Mach. Co., Boston
- Buffalo Forge Co., Buffalo, N. Y.
- Watson-Stillman Co., New York

Bins, Storage

- *Austin-Western Rd. Machy. Co., Chicago
- *Blaw-Knox Co., Pittsburgh, Pa.
- *Burch Corp., The, Crestline, Ohio
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- *Pioneer Gravel Eq. Mfg. Co., Minneapolis
- Beaumont Co., R. H., Philadelphia
- Birmingham Tank Co., Birmingham, Ala.
- Canton Art Metal Co., Canton, Ohio
- Erie Steel Const. Co., Erie, Pa.
- Fairfield Engg. Co., Marion, Ohio
- Iowa Mfg. Co., Cedar Rapids, Iowa
- Johnson Co., C. S., Champaign, Ill.
- Lancaster Iron Works, Inc., Lancaster, Pa.
- Link-Belt Co., Chicago
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Neff & Fry Co., Camden, Ohio
- Pittsburgh-Des Moines Steel Co., Pittsburgh
- Seaverns Co., Jas. B., Batavia, Ill.
- Universal Rd. Machy. Co., Kingston, N. Y.
- Wybaster & Weller Mfg. Co., Chicago
- Western Wheeled Scraper Co., Aurora, Ill.

Bits, Detachable, for Drills

- Detachable Bit Corp. of Amer., New York

Black Powder (See Powder)

EDGAR J. BUTTENHEIM
President

THEODORE REED KENDALL
Editor

O. E. POTTER
Associate Editor

P. C. FORD
Asst. to President

HERBERT K. Saxe
Treasurer

MYRON MACLEOD
Advertising Manager

Vol. XXII
No. 2

Contractors and Engineers Monthly

February,
1931

Published Monthly at 470 Fourth Ave., New York, by Buttenheim-Dix Publishing Corporation
Daily News Plaza, Chicago
Tom Dix, Vice President

642 Hanna Building, Cleveland
George Conover, Manager



TABLE OF CONTENTS

ACCOUNTING		MISCELLANEOUS	
The Contractor's Balance Sheet.....	57	A Self-Contained Electrically-Operated Car Puller.....	104
BOOK REVIEWS		Keeping Dust Out of Your Construction Equipment.....	106
Engineers and Construction Created World's Greatest Residential Street.....	70	A Cement Container for Batch Trucks.....	112
Design Tables for Using Douglas Fir.....	82	LIGHTING UNITS	
BRIDGE CONSTRUCTION		An Improved Carbide Light.....	102
A Heavy Rock Cut and Concrete Arch Bridge in Bedford County, Pa.	49	MATERIAL HANDLING EQUIPMENT	
Sluice Replaced Pipe Sewer During Bridge Construction.....	56	A Side Boom Unit for Contractors for Use in Pipe Handling.....	100
A Novel Method of Handling Concrete for River Piers.....	95	PNEUMATIC MACHINERY	
BUILDING CONSTRUCTION		A Jack Hammer for Medium and Hard Ground....	104
Building 136 Concrete Bins in an Area 153 by 135 Feet..	66	ROAD MACHINERY	
CONSTRUCTION BRIEFS		Air Cleaner with Protective Covering for Highway Surfacers.....	102
How the Other Fellow Did It.....	65	TRACKS AND CRAWLERS	
CONSTRUCTION INDUSTRY NEWS		Semi-Crawler Tracks for Industrial Tractors.....	100
News of Manufacturers and Trade Associations.....	98	TRACTORS	
THE CONSULTING ENGINEER		A New Model Industrial Tractor.....	102
News of Consultants in the Civil Engineering Field....	79	TRUCKS	
DISTRIBUTORS' BULLETIN BOARD		Two New Four-Wheel-Driven Trucks Announced....	114
Distributors Who Have Recently Announced Changes in Their Accounts.....	98	WELDING EQUIPMENT	
THE EDITOR COMMENTS		A New Method of Welding.....	116
Personal Observations and Reflections.....	91	HAULING	
EQUIPMENT AND MATERIALS		Hauling Materials Under Adverse Conditions.....	92
AIR COMPRESSORS		HYDRO-ELECTRIC PROJECTS	
A Tractor-Mounted Air Compressor.....	114	Moving 1,500,000 Cubic Yards of Solid Rock.....	64
BACKFILLERS		ITEMS OF INTEREST	
A Combination Backfiller and Blade Plow.....	116	Our February Front Cover.....	55
CRUSHERS		Blowpipe Provides Effective Method of Cutting Reinforcing Rods for Concrete.....	68
A Portable Crushing and Screening Plant with Gyrotory Crusher.....	110	New Government Contracts Awarded.....	70
DERRICKS		Railway Construction Progressing Rapidly to Hoover Dam.....	76
A Full-Revolving Derrick.....	110	Clearing the Right-of-Way for New Highway Will Give Unemployed Work.....	76
DIRT MOVERS		Competition for Design of a Steel Bridge.....	81
A New Line of Steel Mules.....	112	New Cut-Off Opened by Missouri-Pacific Railroad.....	96
A Rotary Power Steel Dump Body for Trucks.....	114	Expensive Economy.....	100
ELECTRIC PLANTS		A Real Service for Our Readers.....	120
Electric Plants on the Job.....	104	LAW AND LITIGATION	
A New Double Duty Portable Electric Plant.....	118	Legal Points for Contractors.....	97
ENGINES, OIL, GAS AND DIESEL		PURCHASING	
A Larger Series of Six-Cylinder Heavy-Duty Engines.....	108	Who Sells You Road Machinery?.....	63
EXCAVATORS		ROAD CONSTRUCTION	
A New Three-Eighths-Yard Capacity Full-Revolving Shovel.....	108	Building the World's Highest Road.....	53
A New Model Full-Revolving Convertible Full-Crawler Power Shovel.....	112	"Gray Matter" Helped Pave 12 Miles of Road.....	54
A New Ditcher for Small Trenches.....	118	Paving Jacobs Ladder with Bituminous Macadam.....	59
HOISTS AND WINCHES		New Grade Took Kinks Out of Highway in Southwestern Virginia.....	69
A Double Drum Dragline Unit.....	100	Not Shoot to Kill but Shot to Place.....	77
A Precision Two-Speed Hoist for Crawler and Locomotive Cranes.....	104	TUNNEL CONSTRUCTION	
Internal Expanding Band Friction Hoists.....	108	Driving a Two-Mile Water Tunnel with a Capacity of Nearly One Billion Gallons Daily.....	71
		SAFETY IN CONSTRUCTION	
		Look to Your Boots.....	106
		WINTER CONSTRUCTION	
		Blanket of Ice Keeps Green Concrete Warm.....	96
		WIRE ROPE	
		Some Causes of the Failure of Wire Ropes.....	93

Where to Purchase

A comprehensive classification of the leading machinery and supply manufacturers arranged for the convenience of contractors, engineers and public officials who may wish to secure information about construction equipment. A star (*) before the manufacturer's name indicates that his advertisement appears in this issue. The Index of Advertisers faces the inside back cover. When writing to manufacturers please mention **CONTRACTORS & ENGINEERS MONTHLY**.

This index is published as an aid to the reader, but the publishers assume no responsibility for errors or omissions

Acetylene Welding Apparatus (See Welding Apparatus)

Admixtures, Concrete, Accelerating

- *Acqua-Pruf, Inc., New York
- *Columbia Products Co., Barborton, Ohio
- *Dow Chemical Co., Midland, Mich.
- *Solway Sales Corp., New York
- Master Builders Co., Cleveland, Ohio
- Michigan Alkali Co., New York
- Truseon Laboratories, Detroit, Mich.

Admixtures, Concrete, for Workability

Johns-Manville Co., New York

Agitator Bodies, Concrete (See Bodies)

Air Compressors (See Compressors)

Air Compressor Tanks (See Tanks)

Air Hose (See Hose)

Air Hose Couplings (see Couplings)

Air Lift Pumps (see Pumps)

Asphalt (See also Asphalt, Rock)

- *Standard Oil Co. of Ind., Chicago
- *Standard Oil Co. of N. Y., New York
- Asphalt Institute, The, New York
- Atlantic Refining Co., Philadelphia
- Barber Asphalt Co., Philadelphia
- Gulf Refining Co., Pittsburgh, Pa.
- Pioneer Asphalt Co., Lawrenceville, Ill.
- Sinclair Refining Co., Chicago
- Standard Oil Co. of Cal., San Francisco
- Standard Oil Co. of La., New Orleans, La.
- Standard Oil Co. of N. J., Newark, N. J.
- Sun Oil Co., Pittsburgh, Pa.
- Texas Co., New York

Asphalt Block Paving (See Block Paving)

Asphalt Cutters (See Asphalt Tools, and Tools, Pneumatic)

Asphalt Distributors (See Distributors)

Asphalt, Emulsified

- American Bitumuls Co., Baltimore, Md.
- Flinthote Roads, Inc., Boston
- Headley Emulsified Prod. Co., Philadelphia

Asphalt for Curing Concrete

- *McEverlast, Inc., Los Angeles, Calif.
- Barber Asphalt Co., Philadelphia

Asphalt Kettles (See Kettles)

Asphalt Mixtures, Cold-Laid

- Amiesite Asphalt Co. of Amer., Philadelphia
- Colprovia Roads, Inc., New York

Asphalt Plants

- *Austin-Western Road Machy. Co., Chicago
- *Chausse Oil Burner Co., Elkhart, Ind.
- *Simplicity System Co., Chattanooga, Tenn.
- American Fin-Mix Co., Chicago
- Asphalt Equipment Co., Scottsdale, Pa.
- Barber Asphalt Co., Philadelphia
- Charleroi Iron Works, Charleroi, Pa.
- Cumner & Son Co., F. D., Cleveland, O.
- Farasey Mfg. Co., J. D., Cleveland, O.
- Hetherington & Berner, Indianapolis, Ind.
- Iowa Mfg. Co., Cedar Rapids, Iowa
- Macleod Co., Cincinnati, O.
- Madsen Iron Works, Huntington Park, Calif.
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Warren Bros. Co., Boston, Mass.
- Western Wheeled Scraper Co., Aurora, Ill.

Asphalt Pouring Pots (See Pots)

Asphalt Road Finishers (See Finishers)

Asphalt, Rock

- Kentucky Rock Asphalt Co., Louisville, Ky.
- Natural Rock Asphalt Corp., Louisville, Ky.
- Ohio Valley Rock Asphalt Co., Louisville, Ky.
- Utah Rock Asphalt Corp., Pueblo, Colo.
- Uvalde Rock Asphalt Co., San Antonio, Texas

Asphalt Rollers (See Rollers)

Asphalt Sprayers, Hand (See Sprayers)

Asphalt Spreaders (See Spreaders)

Asphalt Surface Heaters (See Heaters)

Asphalt Tools

- *Chausse Oil Burner Co., Elkhart, Ind.
- *Littleford Bros. Cincinnati, Ohio
- Aerol Burner Co., West New York, N. J.
- American Fork & Hoe Co., Cleveland, O.
- American Steel Works, Kansas City, Mo.
- Barber Asphalt Co., Philadelphia
- Cumner & Sons Co., F. D., Cleveland, O.
- Warren Bros. Co., Boston, Mass.

Augers, Earth, Power, Horizontal

Young Engine Corp., Canton, Ohio

Augers, Post-Hole, Power

- Cook Co., A. D., Lawrenceburg, Ind.
- Highway Trailer Co., Edgerton, Wis.
- Loomis Machine Co., Tiffin, Ohio
- Salem Tool Co., Salem, Ohio
- Specialty Device Co., Cincinnati, O.
- W-K-M Co., Houston, Texas

Backfillers

- *Baker Mfg. Co., Springfield, Ill.
- *Bay City Shovels, Inc., Bay City, Mich.
- *General Wheelbarrow Co., Cleveland
- *General Excavator Co., Marion, Ohio
- *Good Roads Machy. Co., Inc., Kennett Sq., Pa.
- *Insley Mfg. Co., Indianapolis, Ind.
- *Koehring Co., Milwaukee, Wis.
- *Lansing Co., Lansing, Mich.
- *Parsons Co., Newton, Iowa
- Austin Machy. Corp., Muskegon, Mich.
- Blair Mfg. Co., W. M., Chicago
- Buckeye Traction Ditcher Co., Findlay, O.
- Bucyrus-Erie Co., Milwaukee, Wis.
- Byers Machine Co., Ravenna, Ohio
- Cleveland Trencher Co., Euclid, Ohio
- Construction Machy. Co., Waterloo, Iowa
- Harnischfeger Corp., Milwaukee, Wis.
- Keystone Driller Co., Beaver Falls, Pa.
- LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa
- Link-Belt Co., Chicago
- Miami Trailer-Scraper Co., Troy, Ohio
- Sidney Steel Scraper Co., Sidney, Ohio
- Slusser-McLean Scraper Co., Sidney, Ohio
- Star Drilling Machine Co., Akron, Ohio
- Universal Power Shovel Co., Detroit, Mich.
- Western Wheeled Scraper Co., Aurora, Ill.
- Willamette-Ersted Co., Portland, Ore.
- W-K-M Co., Houston, Texas

Bags, Paper, for Cement

- Arkell & Smith, Canajoharie, N. Y.
- Phillips Co., Thom., Akron, Ohio
- Raymond Bag Co., Middletown, Ohio
- St. Regis Paper Co., New York
- Union Bag & Paper Co., New York

Bag Trucks (See Trucks)

Baling Presses (See Presses)

Bar Benders and Cutters (See Benders)

Barricades (See also Horses)

Cleveland Steel Spec. Co., Cleveland, O.

Bar Ties (See Ties)

Batch Boxes (See Boxes)

Batchers

- *Blaw-Knox Co., Pittsburgh, Pa.
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- Beaumont Co., R. H., Philadelphia
- Erie Steel Const. Co., Erie, Pa.
- Johnson Co., C. S., Champaign, Ill.
- Macleod Co., Cincinnati, Ohio
- Madsen Iron Works, Huntington Pk., Calif.
- Smith Co., T. L., Milwaukee, Wis.
- Superior Engineering Co., Warren, Ohio

Bearings, Ball

- Ball & Roller Bearing Co., Danbury, Conn.
- Fafnir Bearing Co., New Britain, Conn.
- Gwilliam Co., Brooklyn, N. Y.
- Haynes Stellite Co., Kokomo, Ind.
- New Departure Mfg. Co., Bristol, Conn.
- S K F Industries, New York
- Strom Bearings Co., Chicago

Bearings, Roller

- Gwilliam Co., Brooklyn, N. Y.
- Hyatt Roller Bearing Co., Harrison, N. J.
- Insley Mfg. Co., Indianapolis, Ind.
- S K F Industries, New York
- Timken Roller Bearing Co., Canton, Ohio

Belt Conveyors (See Conveyors)

Belt Dressing (See Dressing)

Belts, Power Transmission

- *Chain Belt Co., Milwaukee, Wis.
- Buckner Process, Inc., Worcester, Mass.
- Dayton Rubber Mfg. Co., Dayton, Ohio
- Worthington Pump & Machy. Corp., New York

Benders and Cutters, Bar

- *Koehring Co., Milwaukee, Wis.
- *Ransome Concrete Machy. Co., Dunellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.

Bending Machines, Pipe

- American Pipe Bending Mach. Co., Boston
- Buffalo Forge Co., Buffalo, N. Y.
- Watson-Stillman Co., New York

Bins, Storage

- *Austin-Western Rd. Machy. Co., Chicago
- *Blaw-Knox Co., Pittsburgh, Pa.
- *Burch Corp., The, Crestline, Ohio
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- *Pioneer Gravel Eq. Mfg. Co., Minneapolis
- Beaumont Co., R. H., Philadelphia
- Birmingham Tank Co., Birmingham, Ala.
- Canton Art Metal Co., Canton, Ohio
- Erie Steel Const. Co., Erie, Pa.
- Fairfield Engg. Co., Marion, Ohio
- Iowa Mfg. Co., Cedar Rapids, Iowa
- Johnson Co., C. S., Champaign, Ill.
- Lancaster Iron Works, Inc., Lancaster, Pa.
- Link-Belt Co., Chicago
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Neff & Fry Co., Camden, Ohio
- Pittsburgh-Des Moines Steel Co., Pittsburgh
- Seaverns Co., Jas. B., Batavia, Ill.
- Universal Rd. Machy. Co., Kingston, N. Y.
- Webster & Weller Mfg. Co's, Chicago
- Western Wheeled Scraper Co., Aurora, Ill.

Bits, Detachable, for Drills

Detachable Bit Corp. of Amer., New York

Black Powder (See Powder)

EDGAR J. BUTTENHEIM
President

THEODORE REED KENDALL
Editor

O. E. POTTER
Associate Editor

P. C. FORD
Asst. to President

HERBERT K. Saxe
Treasurer

MYRON MACLEOD
Advertising Manager

Vol. XXII
No. 3

Contractors and Engineers Monthly

March,
1931

Published Monthly at 470 Fourth Ave., New York, by Buttenheim-Dix Publishing Corporation.

Daily News Plaza, Chicago
Tom Dix, Vice President

642 Hanna Building, Cleveland
George Conover, Manager

TABLE OF CONTENTS

ACCOUNTING		MATERIAL HANDLING EQUIPMENT	
Contractors' Accounting Reports.....	63	Tractor Crane Does Work of Ten Men.....	102
BOOK REVIEWS		MISCELLANEOUS	
Mathematics of Design for Brickwork.....	82	A Self-Oiling Sheave.....	100
BUILDING CONSTRUCTION		A New Type of Gage for Testing Aggregates.....	102
A Steel Deck on a Curved Roof.....	62	PNEUMATIC MACHINERY	
Well-Point Drainage and 30-Hour Continuous Pour of		A New 155-Cubic Foot Outdoor Air Compressor....	102
Concrete on Building Foundation Job.....	65	Details of Portable Compressor Construction.....	104
The Story of the Dome at the National Capitol.....	73	New Drills for Tunneling.....	104
CONSTRUCTION BRIEFS		PUMPS	
How the Other Fellow Did It.....	68	A Contractors' 2-Inch Self-Priming Pump.....	100
CONSTRUCTION INDUSTRY NEWS		SAND AND GRAVEL WASHING PLANTS	
News of Manufacturers and Trade Associations.....	92	A New Portable Gravel Washing Plant.....	94
THE CONSULTING ENGINEER		TRUCKS	
News of Consultants in the Civil Engineering Field....	79	A Heavy-Duty Truck with Two Straight-Eight En-	
DISTRIBUTORS' BULLETIN BOARD		gines	96
Distributors Who Have Recently Announced Changes in		New Type of Truck Speeds Unloading.....	98
Their Accounts	92	GRADING	
THE EDITOR COMMENTS		Huge Grading Job on Arkansas Cross State Highway....	64
Personal Observations and Reflections.....	78	ITEMS OF INTEREST	
EQUIPMENT AND MATERIALS		There Are 122 Contractors per 100,000 Population.....	59
CONCRETE MACHINERY		\$1 for an Idea.....	77
Placing Concrete Through a Nozzle.....	94	Send for This Free Literature.....	106
A New 14-S Mixer.....	94	LAW AND LITIGATION	
CRUSHERS		Legal Points for Contractors.....	74
A New Rock Crusher with One Moving Part.....	98	ROAD CONSTRUCTION	
ENGINES, OIL, GAS AND DIESEL		Steam Shovel in Peat Swamp and Machine Spreading of	
A New Line of Air-Cooled Gas Engines.....	100	Sand and Chips	56
EXCAVATORS		An Economical Method of Handling Ledge Rock for	
A Combination of Scoop and Bulldozer.....	96	Road Surfacing	59
A New 12-Cubic Yard Drag-Scraper.....	104	Building a Modern Brick Boulevard Near Cleveland,	
LOCOMOTIVES		Ohio	60
New Eight and Ten-Ton Industrial Locomotives....	93	A Well-Organized Ontario Concrete Paving Job.....	69
TUNNEL CONSTRUCTION		Heavy Regrading and Two Complete Paving Outfits....	75
Driving the Longest Continuous Rock Tunnel in the			
World	49		

For Directory of Distributors, See Pages 123 to 150

Please advise the publishers if you find any inaccuracies in this list.

Where to Purchase

A comprehensive classification of the leading machinery and supply manufacturers arranged for the convenience of contractors, engineers and public officials who may wish to secure information about construction equipment. A star (*) before the manufacturer's name indicates that his advertisement appears in this issue. The Index of Advertisers faces the inside back cover. When writing to manufacturers please mention **CONTRACTORS & ENGINEERS MONTHLY**.

This index is published as an aid to the reader, but the publishers assume no responsibility for errors or omissions

Acetylene Welding Apparatus (See Welding Apparatus)

Admixtures, Concrete, Accelerating

- *Acqua-Pruf, Inc., New York
- *Columbia Products Co., Barberton, Ohio
- *Dow Chemical Co., Midland, Mich.
- *Golvay Sales Corp., New York
- Master Builders Co., Cleveland, Ohio
- Michigan Alkali Co., New York
- Truscon Laboratories, Detroit, Mich.

Admixtures, Concrete, for Workability

- Colloy Products Co., St. Louis, Mo.
- Johns-Manville Co., New York

Agitator Bodies, Concrete (See Bodies)

Air Compressors (See Compressors)

Air Compressor Tanks (See Tanks)

Air Hose (See Hose)

Air Hose Couplings (see Couplings)

Air Lift Pumps (see Pumps)

Asphalt (See also Asphalt, Rock)

- *Standard Oil Co. of Ind., Chicago
- *Standard Oil Co. of N. Y., New York
- Asphalt Institute, The, New York
- Atlantic Refining Co., Philadelphia
- Barber Asphalt Co., Philadelphia
- Gulf Refining Co., Pittsburgh, Pa.
- Pioneer Asphalt Co., Lawrenceville, Ill.
- Sinclair Refining Co., Chicago
- Standard Oil Co. of Cal., San Francisco
- Standard Oil Co. of La., New Orleans, La.
- Standard Oil Co. of N. J., Newark, N. J.
- Sun Oil Co., Pittsburgh, Pa.
- Texas Co., New York

Asphalt Block Paving (See Block Paving)

Asphalt Cutters (See Asphalt Tools, and Tools, Pneumatic)

Asphalt Distributors (See Distributors)

Asphalt, Emulsified

- American Bitumuls Co., Baltimore, Md.
- Flinthote Roads, Inc., Boston
- Headley Emulsified Prod. Co., Philadelphia

Asphalt for Curing Concrete

- *McEverlast, Inc., Los Angeles, Calif.
- Barber Asphalt Co., Philadelphia

Asphalt Kettles (See Kettles)

Asphalt Mixtures, Cold-Laid

- Amiesite Asphalt Co. of Amer., Philadelphia
- Colprovia Roads, Inc., New York

Asphalt Plants

- *Austin-Western Road Machy. Co., Chicago
- *Chausse Oil Burner Co., Elkhart, Ind.
- *Simplicity System Co., Chattanooga, Tenn.
- American Fin-Mix Co., Chicago
- Asphalt Equipment Co., Scottsdale, Pa.
- Barber Asphalt Co., Philadelphia
- Charleroi Iron Works, Charleroi, Pa.
- Cummer & Son Co., F. D., Cleveland, O.
- Farsney Mfg. Co., J. D., Cleveland, O.
- Hetherington & Berner, Indianapolis, Ind.
- Iowa Mfg. Co., Cedar Rapids, Iowa
- MacLeod Co., Cincinnati, O.
- Madsen Iron Works, Huntington Park, Calif.
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Warren Bros. Co., Boston, Mass.
- Western Wheeled Scraper Co., Aurora, Ill.

Asphalt Pouring Pots (See Pots)

Asphalt Road Finishers (See Finishers)

Asphalt, Rock

- Kentucky Rock Asphalt Co., Louisville, Ky.
- Natural Rock Asphalt Corp., Louisville, Ky.
- Ohio Valley Rock Asphalt Co., Louisville, Ky.
- Utah Rock Asphalt Corp., Pueblo, Colo.
- Uvalde Rock Asphalt Co., San Antonio, Texas

Asphalt Rollers (See Rollers)

Asphalt Sprayers, Hand (See Sprayers)

Asphalt Spreaders (See Spreaders)

Asphalt Surface Heaters (See Heaters)

Asphalt Tools

- *Chausse Oil Burner Co., Elkhart, Ind.
- *Littleford Bros. Cincinnati, Ohio
- Aerol Burner Co., West New York, N. J.
- American Fork & Hoe Co., Cleveland, O.
- American Steel Works, Kansas City, Mo.
- Barber Asphalt Co., Philadelphia
- Cummer & Sons Co., F. D., Cleveland, O.
- Warren Bros. Co., Boston, Mass.

Augers, Earth, Power, Horizontal

- Hydranger Corp., Ltd., San Francisco, Calif.
- Young Engine Corp., Canton, Ohio

Augers, Post-Hole, Power

- Cook Co., A. D., Lawrenceburg, Ind.
- Highway Trailer Co., Edgerton, Wis.
- Loomis Machine Co., Tiffin, Ohio
- Salem Tool Co., Salem, Ohio
- Specialty Devices Co., Cincinnati, O.
- W-K-M Co., Houston, Texas

Backfillers

- *Bay City Shovels, Inc., Bay City, Mich.
- *General Wheelbarrow Co., Cleveland
- *General Excavator Co., Marion, Ohio
- *Insley Mfg. Co., Indianapolis, Ind.
- *Keystone Driller Co., Beaver Falls, Pa.
- *Koehring Co., Milwaukee, Wis.
- *Lansing Co., Lansing, Mich.
- *LaPlant-Ghoste Mfg. Co., Cedar Rapids, Iowa
- *Parsons Co., Newton, Iowa
- Austin Machy. Corp., Muskegon, Mich.
- Baker Mfg. Co., Springfield, Ill.
- Blair Mfg. Co., W. M., Chicago
- Buckeye Traction Ditcher Co., Findlay, O.
- Bucyrus-Erie Co., Milwaukee, Wis.
- Byers Machine Co., Ravenna, Ohio
- Cleveland Trencher Co., Euclid, Ohio
- Construction Machy. Co., Waterloo, Iowa
- Good Roads Machy. Co., Inc., Kennett Sq., Pa.
- Harnischfeger Corp., Milwaukee, Wis.
- Link-Belt Co., Chicago
- Miami Trailer-Scraper Co., Troy, Ohio
- Sidney Steel Scraper Co., Sidney, Ohio
- Slusser-McLean Scraper Co., Sidney, Ohio
- Star Drilling Machine Co., Akron, Ohio
- Universal Power Shovel Co., Detroit, Mich.
- Western Wheeled Scraper Co., Aurora, Ill.
- Willamette-Ersted Co., Portland, Ore.
- W-K-M Co., Houston, Texas

Bags, Paper, for Cement

- Arkell & Smith, Canajoharie, N. Y.
- Phillips Co., Thos., Akron, Ohio
- Raymond Bag Co., Middletown, Ohio
- St. Regis Paper Co., New York
- Union Bag & Paper Co., New York

Bag Trucks (See Trucks)

Baling Presses (See Presses)

Bar Benders and Cutters (See Benders)

Barricades (See also Horses)

- Cleveland Steel Spec. Co., Cleveland, O.

Bar Ties (See Ties)

Batch Boxes (See Boxes)

Batchers

- *Blaw-Knox Co., Pittsburgh, Pa.
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- Barber-Greene Co., Aurora, Ill.
- Beaumont Co., R. H., Philadelphia
- Erie Steel Const. Co., Erie, Pa.
- Johnson Co., C. S., Champaign, Ill.
- MacLeod Co., Cincinnati, Ohio
- Madsen Iron Works, Huntington Pk., Calif.
- Smith Co., T. L., Milwaukee, Wis.
- Superior Engineering Co., Warren, Ohio

Bearings, Ball

- Ball & Roller Bearing Co., Danbury, Conn.
- Fafnir Bearing Co., New Britain, Conn.
- Gwilliam Co., Brooklyn, N. Y.
- Haynes Stellite Co., Kokomo, Ind.
- New Departure Mfg. Co., Bristol, Conn.
- S K F Industries, New York
- Strom Bearings Co., Chicago

Bearings, Roller

- Gwilliam Co., Brooklyn, N. Y.
- Hyatt Roller Bearing Co., Harrison, N. J.
- Insley Mfg. Co., Indianapolis, Ind.
- S K F Industries, New York
- Timken Roller Bearing Co., Canton, Ohio

Belt Conveyors (See Conveyors)

Belt Dressing (See Dressing)

Belts, Power Transmission

- *Chain Belt Co., Milwaukee, Wis.
- Buckner Process, Inc., Worcester, Mass.
- Dayton Rubber Mfg. Co., Dayton, Ohio
- Falls Clutch & Machy. Co., Cuyahoga Falls, O.
- Worthington Pump & Machy. Corp., New York
- Benders and Cutters, Bar
- *Koehring Co., Milwaukee, Wis.
- *Ransome Concrete Machy. Co., Dunellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.
- Wallace Supplies Mfg. Co., Chicago

Bending Machines, Pipe

- American Pipe Bending Mach. Co., Boston
- Buffalo Forge Co., Buffalo, N. Y.
- Wallace Supplies Mfg. Co., Chicago
- Watson-Stillman Co., New York

Bins, Storage

- *Austin-Western Rd. Machy. Co., Chicago
- *Blaw-Knox Co., Pittsburgh, Pa.
- *Burch Corp., The, Crestline, Ohio
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- *Pioneer Gravel Eq. Mfg. Co., Minneapolis
- Beaumont Co., R. H., Philadelphia
- Birmingham Tank Co., Birmingham, Ala.
- Canton Art Metal Co., Canton, Ohio
- Erie Steel Const. Co., Erie, Pa.
- Fairfield Engg. Co., Marion, Ohio
- Iowa Mfg. Co., Cedar Rapids, Iowa
- Johnson Co., C. S., Champaign, Ill.
- Lancaster Iron Works, Inc., Lancaster, Pa.
- Link-Belt Co., Chicago
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Neff & Fry Co., Camden, Ohio
- Pittsburgh-Des Moines Steel Co., Pittsburgh
- Seaverns Co., Jas. B., Batavia, Ill.
- Universal Rd. Machy. Co., Kingston, N. Y.
- Webster & Weller Mfg. Co's, Chicago
- Western Wheeled Scraper Co., Aurora, Ill.

Bits, Detachable, for Drills

- Detachable Bit Corp. of Amer., New York

Black Powder (See Powder)

EDGAR J. BUTTENHEIM
President

THEODORE REED KENDALL
Editor

O. E. POTTER
Associate Editor

P. C. FORD
Asst. to President

HERBERT K. Saxe
Treasurer

MYRON MACLEOD
Advertising Manager

Vol. XXII

No. 4

Contractors and Engineers Monthly

April,
1931

Published Monthly at 470 Fourth Ave., New York, by Bittenheim-Dix Publishing Corporation.

Daily News Plaza, Chicago
Tom Dix, Vice President

642 Hanna Building, Cleveland
George Conover, Manager

TABLE OF CONTENTS

ACCOUNTING

- Misappropriation? The Contractor as a Trustee of
Borrowed Funds 73

BLASTING

- Blasting Mats Used in City Operations 64

BOOK REVIEWS

- How 31 Rock Tunnels Were Driven 72
Modern Diesel Engine Practice 87
True Economy in Highway Bridge Design 94

BRIDGE CONSTRUCTION

- Cableway Handles All Material for 288-Foot Concrete
Arch Bridge 65
Texas Bridge Has Welded Battleship Deck Floor..... 104

BUILDING CONSTRUCTION

- Construction Rapidly Follows Demolition 68

CONSTRUCTION BRIEFS

- How the Other Fellow Did It 82

CONSTRUCTION INDUSTRY NEWS

- News of Manufacturers and Trade Associations..... 106

THE CONSULTING ENGINEER

- News of Consultants in the Civil Engineering Field... 91

DISTRIBUTORS' BULLETIN BOARD

- Distributors Who Have Recently Announced Changes
in Their Accounts 107

THE EDITOR COMMENTS

- Personal Observations and Reflections 103

EQUIPMENT AND MATERIALS

ASPHALT EQUIPMENT

- A Two-Fire Dryer for Portable Road Asphalt Pav-
ing Plants 114
An Asphalt Patch Plant 116
An Improved Heater for Asphalt Tank Cars 124

BUCKETS

- A Clamshell Bucket with Roller Bearings 120

CONCRETE MACHINERY

- Improvements in Truck Mixer 112
A Truck-Mounted Mixer with Delivery Chute..... 120

DIRT MOVERS

- A Tractor-Operated Scraper 112
A New Hydraulic Roll-Over Scraper 128

ENGINES, OIL, GAS AND DIESEL

- A New Enclosed Self-Oiling Industrial Power Unit. 110
Precision-Built 2 and 4-Cylinder L-Head Engines.. 118
A New Line of Industrial 6-Cylinder Gasoline
Power Units 120

EXCAVATORS

- A New 3-Yard Diesel Dragline 107
A New Convertible Power Shovel 108
A New $\frac{3}{4}$ -Yard Full-Revolving Shovel 126
A New Addition to Line of Shovel Units..... 132

HOISTS AND WINCHES

- A Small Portable Power Hoist 126

LOCOMOTIVES

- A 25-Ton Gasoline Locomotive 114

MATERIAL HANDLING EQUIPMENT

- A New Dial-Scale Weigh-Hopper for a Bucket
Loader 108
A New Model Self-Feeding Bucket Loader 122

MISCELLANEOUS

- Dipper Fronts with Scraper Blades 109
Boring Horizontal Holes Under Pavements..... 110
New Device Corrects Settlement Under Rigid Type
Pavement 116
Spiral Welded Pipe 128
Beam Scales Converted to Automatic Registering
Scales 128
Maintenance of Concrete Pavements with Bitu-
minous Materials 130

PUMPS

- Gas-Engine-Driven Centrifugal Pumping Units 132

SCREENS

- A New Type of Vibrating Screen 112

ROAD MACHINERY

- A Grader with a Versatile Blade 122
A Combination Joint Filler and Traffic Line Marker 126
A New Mechanical Spreader for Sand or Stone..... 130
An Easy Steering Motor Roller 130

TRAILER

- A Trailer for Handling Equipment up to 14 Tons
in Weight 122

TRUCKS, MOTOR

- A Complete New Line of Medium and Heavy-Duty
Trucks 109
Aluminum Bodies Permit Larger Loads 118

WAGONS, DUMP

- An 8-Yard Bottom-Dump Crawler Wagon..... 124
A Flexible Tractor-Powered Dump Wagon 132

GRADING

- Excavation Methods to Suit 83

HAULING

- Controlling Profits Through Proper Truck Operation.. 84

HYDRO-ELECTRIC PLANTS

- Winter Construction of a Low Head Automatic Hydro-
Electric Plant 77

ITEMS OF INTEREST

- Lighting the Job for Night Dragline Work..... 62
A Home-Made Superheater for Unloading Tank Cars.. 72
Simultaneous Operation of Two Mixers Under One Bin. 105
Here's Frost for You..... 105
These Catalogs Are for You 134

LAW AND LITIGATION

- Legal Points for Contractors 89

RIVER AND FLOOD CONTROL

- Building a New Dike with a Sheet Pile Cut-Off..... 59
Speed in Levee Construction 104

ROAD CONSTRUCTION

- West Virginia Contractor Relieved Local Unemploy-
ment 63
Cutting a Curb and Gutter Trench Through 36 Inches
of Limestone 67
Top-Soil Road Construction in North Carolina..... 75
The Value of Reinforcement in Concrete Roads..... 76
Road Building in the Alps 83
Portable Crushers Produce Good Yardage..... 105

WELDING

- Welding Brings in New Hazards 74

Please advise the publishers if you find any inaccuracies in this list.

Where to Purchase

A comprehensive classification of the leading machinery and supply manufacturers arranged for the convenience of contractors, engineers and public officials who may wish to secure information about construction equipment. A star (*) before the manufacturer's name indicates that his advertisement appears in this issue. The Index of Advertisers faces the inside back cover. When writing to manufacturers please mention CONTRACTORS & ENGINEERS MONTHLY.

This index is published as an aid to the reader, but the publishers assume no responsibility for errors or omissions

Acetylene Welding Apparatus (See Welding Apparatus)

Admixtures, Concrete, Accelerating

- *Acqua-Pruf, Inc., New York
- *Columbia Products Co., Barborton, Ohio
- *Dow Chemical Co., Midland, Mich.
- *Solvay Sales Corp., New York
- Master Builders Co., Cleveland, Ohio
- Michigan Alkali Co., New York
- Truscon Laboratories, Detroit, Mich.

Admixtures, Concrete, for Workability

- Colloy Products Co., St. Louis, Mo.
- Johns-Manville Co., New York

Aerial Tramways (See Cableways)

Agitator Bodies, Concrete (See Bodies)

Air Compressors (See Compressors)

Air Compressor Tanks (See Tanks)

Air Hose (See Hose)

Air Hose Couplings (see Couplings)

Air Lift Pumps (see Pumps)

Asphalt (See also Asphalt, Rock)

- *Standard Oil Co. of Ind., Chicago
- *Standard Oil Co. of N. Y., New York
- Asphalt Institute, The, New York
- Atlantic Refining Co., Philadelphia
- Barber Asphalt Co., Philadelphia
- Gulf Refining Co., Pittsburgh, Pa.
- Pioneer Asphalt Co., Lawrenceville, Ill.
- Sinclair Refining Co., Chicago
- Standard Oil Co. of Cal., San Francisco
- Standard Oil Co. of La., New Orleans, La.
- Standard Oil Co. of N. J., Newark, N. J.
- Sun Oil Co., Pittsburgh, Pa.
- Texas Co., New York

Asphalt Block Paving (See Block Paving)

Asphalt Cutters (See Asphalt Tools, and Tools, Pneumatic)

Asphalt Distributors (See Distributors)

Asphalt, Emulsified

- American Bitumuls Co., Baltimore, Md.
- Flinthote Roads, Inc., Boston
- Headley Emulsified Prod. Co., Philadelphia

Asphalt for Curing Concrete

- *McEverlast, Inc., Los Angeles, Calif.
- Barber Asphalt Co., Philadelphia

Asphalt Kettles (See Kettles)

Asphalt Mixtures, Cold-Laid

- Amiesite Asphalt Co. of Amor., Philadelphia
- Colprovia Roads, Inc., New York

Asphalt Plants

- *Austin-Western Road Machy. Co., Chicago
- *Chausse Oil Burner Co., Elkhart, Ind.
- *Simplicity System Co., Chattanooga, Tenn.
- American Fin-Mix Co., Chicago
- Asphalt Equipment Co., Scottsdale, Pa.
- Barber Asphalt Co., Philadelphia
- Charleroi Iron Works, Charleroi, Pa.
- Cumner & Son Co., F. D., Cleveland, O.
- Farssey Mfg. Co., J. D., Cleveland, O.
- Hetherington & Berner, Indianapolis, Ind.
- Iowa Mfg. Co., Cedar Rapids, Iowa
- Macloed Co., Cincinnati, O.
- Madsen Iron Works, Huntington Park, Calif.
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Warren Bros. Co., Boston, Mass.
- Western Wheeled Scraper Co., Aurora, Ill.

Asphalt Pouring Pots (See Pots)

Asphalt Road Finishers (See Finishers)

Asphalt, Rock

- Kentucky Rock Asphalt Co., Louisville, Ky.
- Natural Rock Asphalt Corp., Louisville, Ky.
- Ohio Valley Rock Asphalt Co., Louisville, Ky.
- Utah Rock Asphalt Corp., Pueblo, Colo.
- Uvalde Rock Asphalt Co., San Antonio, Texas

Asphalt Rollers (See Rollers)

Asphalt Sprayers, Hand (See Sprayers)

Asphalt Spreaders (See Spreaders)

Asphalt Surface Heaters (See Heaters)

Asphalt Tools

- *Chausse Oil Burner Co., Elkhart, Ind.
- *Littleford Bros. Cincinnati, Ohio
- Aerol Burner Co., West New York, N. J.
- American Fork & Hoe Co., Cleveland, O.
- American Steel Works, Kansas City, Mo.
- Barber Asphalt Co., Philadelphia
- Cumner & Sons Co., F. D., Cleveland, O.
- Warren Bros. Co., Boston, Mass.

Augers, Earth, Power, Horizontal

- Hydrauger Corp., Ltd., San Francisco, Calif.
- Young Engine Corp., Canton, Ohio

Augers, Post-Hole, Power

- Cook Co., A. D., Lawrenceburg, Ind.
- Highway Trailer Co., Edgerton, Wis.
- Loomis Machine Co., Tiffin, Ohio
- Salem Tool Co., Salem, Ohio
- Specialty Device Co., Cincinnati, O.
- Utility Supply Co., Clintonville, Wis.
- W-K-M Co., Houston, Texas

Backfillers

- *Bay City Shovels, Inc., Bay City, Mich.
- *General Wheelbarrow Co., Cleveland
- *General Excavator Co., Marion, Ohio
- *Insley Mfg. Co., Indianapolis, Ind.
- *Keystone Driller Co., Beaver Falls, Pa.
- *Koehring Co., Milwaukee, Wis.
- *Lansing Co., Lansing, Mich.
- *LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa
- *Parsons Co., Newton, Iowa
- Austin Machy. Corp., Muskegon, Mich.
- Baker Mfg. Co., Springfield, Ill.
- Blair Mfg. Co., W. M., Chicago
- Buckeye Traction Ditcher Co., Findlay, O.
- Bucyrus-Erie Co., Milwaukee, Wis.
- Byers Machine Co., Ravenna, Ohio
- Cleveland Trencher Co., Euclid, Ohio
- Construction Machy. Co., Waterloo, Iowa
- Good Roads Machy. Co., Inc., Kennett Sq., Pa.
- Harnischfeger Corp., Milwaukee, Wis.
- Link-Belt Co., Chicago
- Miami Trailer-Scraper Co., Troy, Ohio
- Sidney Steel Scraper Co., Sidney, Ohio
- Slusser-McLean Scraper Co., Sidney, Ohio
- Star Drilling Machine Co., Akron, Ohio
- Universal Power Shovel Co., Detroit, Mich.
- Western Wheeled Scraper Co., Aurora, Ill.
- Willamette-Ersted Co., Portland, Ore.
- W-K-M Co., Houston, Texas

Bags, Paper, for Cement

- Arkell & Smith, Canajoharie, N. Y.
- Phillips Co., Thos., Akron, Ohio
- Raymond Bag Co., Middletown, Ohio
- St. Regis Paper Co., New York
- Union Bag & Paper Co., New York

Bag Trucks (See Trucks)

Baling Presses (See Presses)

Bar Benders and Cutters (See Benders)

Barricades (See also Horses)

- Cleveland Steel Spec. Co., Cleveland, O.

Bar Ties (See Ties)

Batch Boxes (See Boxes)

Batches

- *Blaw-Knox Co., Pittsburgh, Pa.
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- Barber-Greene Co., Aurora, Ill.
- Beaumont Co., R. H., Philadelphia
- Erie Steel Const. Co., Erie, Pa.
- Johnson Co., C. S., Champaign, Ill.
- Macloed Co., Cincinnati, Ohio
- Madsen Iron Works, Huntington Pk., Calif.
- Smith Co., T. L., Milwaukee, Wis.
- Superior Engineering Co., Warren, Ohio

Bearings, Ball

- Ball & Roller Bearing Co., Danbury, Conn.
- Fafnir Bearing Co., New Britain, Conn.
- Gwilliam Co., Brooklyn, N. Y.
- Haynes Stellite Co., Kokomo, Ind.
- New Departure Mfg. Co., Bristol, Conn.
- S K F Industries, New York
- Strom Bearings Co., Chicago

Bearings, Roller

- Gwilliam Co., Brooklyn, N. Y.
- Hyatt Roller Bearing Co., Harrison, N. J.
- Insley Mfg. Co., Indianapolis, Ind.
- S K F Industries, New York
- Timken Roller Bearing Co., Canton, Ohio

Belt Conveyors (See Conveyors)

Belt Dressing (See Dressing)

Belts, Power Transmission

- *Chain Belt Co., Milwaukee, Wis.
- Buckner Process, Inc., Worcester, Mass.
- Dayton Rubber Mfg. Co., Dayton, Ohio
- Falls Clutch & Machy. Co., Cuyahoga Falls, O.
- Worthington Pump & Machy. Corp., New York

Benders and Cutters, Bar

- *Koehring Co., Milwaukee, Wis.
- *Ransome Concrete Machy. Co., Danellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.
- Wallace Supplies Mfg. Co., Chicago

Bending Machines, Pipe

- American Pipe Bending Mach. Co., Boston
- Buffalo Forge Co., Buffalo, N. Y.
- Wallace Supplies Mfg. Co., Chicago
- Watson-Stillman Co., New York

Bins, Storage

- *Austin-Western Rd. Machy. Co., Chicago
- *Blaw-Knox Co., Pittsburgh, Pa.
- *Burch Corp., The, Crestline, Ohio
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- *Pioneer Gravel Eq. Mfg. Co., Minneapolis
- Beaumont Co., R. H., Philadelphia
- Birmingham Tank Co., Birmingham, Ala.
- Canton Art Metal Co., Canton, Ohio
- Erie Steel Const. Co., Erie, Pa.
- Fairfield Engg. Co., Marion, Ohio
- Iowa Mfg. Co., Cedar Rapids, Iowa

EDGAR J. BUTTENHEIM
President

THEODORE REED KENDALL
Editor

O. E. POTTER
Associate Editor

P. C. FORD
Asst. to President

HERBERT K. SAXE
Treasurer

MYRON MACLEOD
Advertising Manager

Vol. XXII
No. 5

Contractors and Engineers Monthly

May,
1931

Published Monthly at 470 Fourth Ave., New York, by Bittenheim-Dix Publishing Corporation.

Daily News Plaza, Chicago
Tom Dix, Vice President

642 Hanna Building, Cleveland
George Conover, Manager

TABLE OF CONTENTS

ACCOUNTING		MISCELLANEOUS	
Getting the Business Facts in Contracting.....	61	Cast Iron Headwalls for Culverts.....	108
BRIDGE CONSTRUCTION		A New Steel Curb.....	112
River and Highway Bridges Eliminate a Traffic Hazard..	63	A New Combination Transit and Level.....	116
CARE OF EQUIPMENT		A New Idea in Bolts.....	118
Making Belt Conveyors Last Longer.....	102	PUMPS	
CARTOONS		A One-Man Portable Pump.....	104
A New Series of Cost Cutters.....	62	ROAD MACHINERY	
CONSTRUCTION BRIEFS		Spreading Base Rock Mechanically.....	104
How the Other Fellow Did It.....	78	A Patrol or Planer with Power Control.....	110
CONSTRUCTION INDUSTRY NEWS		A New Road Grader and Maintainer.....	112
News of Manufacturers and Trade Associations.....	99	A New Hydraulic Bulldozer.....	114
THE CONSULTING ENGINEER		TRAILERS	
News of Consultants in the Civil Engineering Field....	87	A 11-14-Cubic Yard Hopper-Type Rear-Dump Trailer	106
DAM CONSTRUCTION		TRUCKS, MOTOR	
Building a Dam with a Power Drag Scraper.....	66	Three-Ton Heavy-Duty Trucks.....	108
Hoover Dam Tunnels to Require 1,563,000 Cubic Yards		WELDING EQUIPMENT	
of Rock Excavation	68	A Manganese Steel Welding Rod.....	114
DISTRIBUTORS' BULLETIN BOARD		EXCAVATION	
Distributors Who Have Recently Announced Changes		100,000 Cubic Yards Moved in 64 Working Days.....	79
in Their Accounts	100	IRRIGATION	
THE EDITOR COMMENTS		Building a Big Irrigation Ditch in the Southern Idaho	
Personal Observations and Reflections.....	86	Desert	65
EQUIPMENT AND MATERIALS		ITEMS OF INTEREST	
AIR COMPRESSORS		Kentucky Slips Back into "Unclassified Excavation"....	57
A Diesel-Engine-Driven Portable Air Compressor..	106	Keep Convicts Off the Road.....	57
Economical Compressed Air for Semi-Permanent In-		1931 Board of Executives of A. E. D. (Photo).....	99
stallations	114	Use This Service—It's Free.....	120
ASPHALT EQUIPMENT		LAW AND LITIGATION	
A Hand Squeegee for Applying Asphalt Filler to		Legal Points for Contractors.....	85
Brick	118	ROAD CONSTRUCTION	
BODIES, DUMP		The Ground Work of a B. S. T. M. Job.....	55
A New Dump Hoist for Light Duty Trucks.....	100	Connecticut Contractor Built New Hampshire's Longest	
A Heavy-Duty Pipeless Hydraulic Hoist Dump Body	112	1930 Concrete Road	62
CONCRETE EQUIPMENT		Outline of Methods and Organization on a 7.2-Mile Con-	
Complete Ready-Mixed Concrete Plants.....	116	crete Road Job in West Virginia.....	69
CRUSHERS		Have You Clocked Your Concrete Paving Operations?	
A New Rock Crusher with Jaw Dimensions of 14 by		Part I	71
28 Inches	102	Machine Finishing Replacing Hand Labor in Asphalt	
A Double-Unit Crushing and Screening Plant.....	110	Paving Work	81
ENGINES		SAFETY IN CONSTRUCTION	
A New 6-Cylinder Power Unit.....	110	When Everyone Works Safely, We Shall Have Safe Jobs	67
EXCAVATORS		Safety Stories	84
A New Shovel Loader for Dirt Moving.....	106	TUNNEL CONSTRUCTION	
A Truck-Mounted Excavator.....	118	Four Methods of Handling Concrete on a Los Angeles	
LIGHTING PLANTS		Tunnel Job	58
Alternating Current Electric Plants.....	100	WELDING	
MATERIAL HANDLING EQUIPMENT		Electric Welding Costs Actually Below Riveting Costs..	57
A Clean Method of Handling Bulk Cement from		The Second Welding Prize Competition.....	70
Box Cars	108		

Where to Purchase

A comprehensive classification of the leading machinery and supply manufacturers arranged for the convenience of contractors, engineers and public officials who may wish to secure information about construction equipment. A star (*) before the manufacturer's name indicates that his advertisement appears in this issue. The Index of Advertisers faces the inside back cover. When writing to manufacturers please mention CONTRACTORS & ENGINEERS MONTHLY.

This index is published as an aid to the reader, but the publishers assume no responsibility for errors or omissions

Acetylene Welding Apparatus (See Welding Apparatus)

Admixtures, Concrete, Accelerating

- *Acqua-Pruf, Inc., New York
- *Columbia Products Co., Barberton, Ohio
- *Dow Chemical Co., Midland, Mich.
- *Solvay Sales Corp., New York
- Master Builders Co., Cleveland, Ohio
- Michigan Alkali Co., New York
- Super Concrete Emulsions, Ltd., Pittsburgh, Pa.
- Truscon Laboratories, Detroit, Mich.

Admixtures, Concrete, for Workability

- Colloy Products Co., St. Louis, Mo.
- Johns-Manville Co., New York
- Super Concrete Emulsions, Ltd., Pittsburgh, Pa.

Aerial Tramways (See Tramways)

Agitator Bodies, Concrete (See Bodies)

Air Compressors (See Compressors)

Air Compressor Tanks (See Tanks)

Air Hose (See Hose)

Air Hose Couplings (see Couplings)

Air Lift Pumps (see Pumps)

Asphalt (See also Asphalt, Rock)

- *Standard Oil Co. of Ind., Chicago
- *Standard Oil Co. of N. Y., New York
- Asphalt Institute, The, New York
- Atlantic Refining Co., Philadelphia
- Barber Asphalt Co., Philadelphia
- Gulf Refining Co., Pittsburgh, Pa.
- Pioneer Asphalt Co., Lawrenceville, Ill.
- Sinclair Refining Co., Chicago
- Standard Oil Co. of Cal., San Francisco
- Standard Oil Co. of La., New Orleans, La.
- Standard Oil Co. of N. J., Newark, N. J.
- Sun Oil Co., Pittsburgh, Pa.
- Texas Co., The, New York

Asphalt Block Paving (See Block Paving)

Asphalt Cutters (See Asphalt Tools, and Tools, Pneumatic)

Asphalt Distributors (See Distributors)

Asphalt, Emulsified

- American Bitumuls Co., Baltimore, Md.
- Flintkote Roads, Inc., Boston
- Headley Emulsified Prod. Co., Philadelphia

Asphalt for Curing Concrete

- *McEverlast, Inc., Los Angeles, Calif.
- Barber Asphalt Co., Philadelphia

Asphalt Kettles (See Kettles)

Asphalt Mixtures, Cold-Laid

- Amiesite Asphalt Co. of Amer., Philadelphia
- Colprovia Roads, Inc., New York

Asphalt Plants

- *Austin-Western Road Machy. Co., Chicago
- *Chausse Oil Burner Co., Elkhart, Ind.
- *Hetherington & Berner, Indianapolis, Ind.
- *Simplicity System Co., Chattanooga, Tenn.
- American Fin-Mix Co., Chicago
- Asphalt Equipment Co., Scottsdale, Pa.
- Barber Asphalt Co., Philadelphia
- Charleroi Iron Works, Charleroi, Pa.
- Cummers & Son Co., F. D., Cleveland, O.
- Parasey Mfg. Co., J. D., Cleveland, O.
- Iowa Mfg. Co., Cedar Rapids, Iowa
- MacLeod Co., Cincinnati, O.
- Madsen Iron Works, Huntington Park, Calif.
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Warren Bros. Co., Boston, Mass.
- Western Wheeled Scraper Co., Aurora, Ill.

Asphalt Pouring Pots (See Pots)

Asphalt Road Finishers (See Finishers)

Asphalt, Rock

- Kentucky Rock Asphalt Co., Louisville, Ky.
- Natural Rock Asphalt Corp., Louisville, Ky.
- Ohio Valley Rock Asphalt Co., Louisville, Ky.
- Utah Rock Asphalt Corp., Pueblo, Colo.
- Uvalde Rock Asphalt Co., San Antonio, Texas

Asphalt Rollers (See Rollers)

Asphalt Sprayers, Hand (See Sprayers)

Asphalt Spreaders (See Spreaders)

Asphalt Surface Heaters (See Heaters)

Asphalt Tools

- *Chausse Oil Burner Co., Elkhart, Ind.
- *Littleford Bros. Cincinnati, Ohio
- Aerofil Burner Co., West New York, N. J.
- American Fork & Hoe Co., Cleveland, O.
- American Steel Works, Kansas City, Mo.
- Barber Asphalt Co., Philadelphia
- Cummers & Son Co., F. D., Cleveland, O.
- Warren Bros. Co., Boston, Mass.

Augers, Earth, Power, Horizontal

- Hydrauger Corp., Ltd., San Francisco, Calif.
- Young Engine Corp., Canton, Ohio

Augers, Post-Hole, Power

- Cook Co., A. D., Lawrenceburg, Ind.
- Highway Trailer Co., Edgerton, Wis.
- Loomis Machine Co., Tiffin, Ohio
- Salem Tool Co., Salem, Ohio
- Specialty Device Co., Cincinnati, O.
- Utility Supply Co., Clintonville, Wis.
- W-K-M Co., Houston, Texas

Backfillers

- *Austin Machy. Corp., Muskegon, Mich.
- *Bay City Shovels, Inc., Bay City, Mich.
- *General Wheelbarrow Co., Cleveland
- *General Excavator Co., Marion, Ohio
- *Inaley Mfg. Co., Indianapolis, Ind.
- *Keystone Driller Co., Beaver Falls, Pa.
- *Koehring Co., Milwaukee, Wis.
- *Lansing Co., Lansing, Mich.
- *LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa
- *Parsons Co., Newton, Iowa
- Baker Mfg. Co., Springfield, Ill.
- Blair Mfg. Co., W. M., Chicago
- Buckeye Traction Ditcher Co., Findlay, O.
- Bucyrus-Erie Co., So. Milwaukee, Wis.
- Byers Machine Co., Ravenna, Ohio
- Cleveland Trencher Co., Euclid, Ohio
- Construction Machy. Co., Waterloo, Iowa
- Good Roads Machy. Co., Inc., Kennett Sq., Pa.
- Harnischfeger Corp., Milwaukee, Wis.
- Link-Belt Co., Chicago
- Miami Trailer-Scraper Co., Troy, Ohio
- Sidney Steel Scraper Co., Sidney, Ohio
- Slusser-McLean Scraper Co., Sidney, Ohio
- Star Drilling Machine Co., Akron, Ohio
- Universal Power Shovel Co., Detroit, Mich.
- Western Wheeled Scraper Co., Aurora, Ill.
- Williamette-Ersted Co., Portland, Ore.
- W-K-M Co., Houston, Texas

Bags, Paper, for Cement

- Arkell & Smith, Canajoharie, N. Y.
- Phillips Co., Thos., Akron, Ohio
- Raymond Bag Co., Middletown, Ohio
- St. Regis Paper Co., New York
- Union Bag & Paper Co., New York

Bag Trucks (See Trucks)

Baling Presses (See Presses)

Bar Benders and Cutters (See Benders)

Barricades (See also Horses)

- Cleveland Steel Spec. Co., Cleveland, O.

Bar Ties (See Ties)

Batch Boxes (See Boxes)

Batchers

- *Blaw-Knox Co., Pittsburgh, Pa.
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- Barber-Greene Co., Aurora, Ill.
- Beaumont Co., R. H., Philadelphia
- Erie Steel Const. Co., Erie, Pa.
- Johnson Co., O. S., Champaign, Ill.
- MacLeod Co., Cincinnati, Ohio
- Madsen Iron Works, Huntington Pk., Calif.
- Smith Co., T. L., Milwaukee, Wis.
- Superior Engineering Co., Warren, Ohio

Bearings, Ball

- Ball & Roller Bearing Co., Danbury, Conn.
- Fafnir Bearing Co., New Britain, Conn.
- Gwilliam Co., Brooklyn, N. Y.
- Haynes Stellite Co., Kokomo, Ind.
- New Departure Mfg. Co., Bristol, Conn.
- S K F Industries, New York
- Strom Bearings Co., Chicago

Bearings, Roller

- Gwilliam Co., Brooklyn, N. Y.
- Hyatt Roller Bearing Co., Harrison, N. J.
- Inaley Mfg. Co., Indianapolis, Ind.
- S K F Industries, New York
- Timken Roller Bearing Co., Canton, Ohio

Belt Conveyors (See Conveyors)

Belt Dressing (See Dressing)

Belts, Power Transmission

- *Chain Belt Co., Milwaukee, Wis.
- Buckner Process, Inc., Worcester, Mass.
- Dayton Rubber Mfg. Co., Dayton, Ohio
- Falls Clutch & Machy. Co., Cuyahoga Falls, O.
- Worthington Pump & Machy. Corp., New York
- *Koehring Co., Milwaukee, Wis.
- *Ransome Concrete Machy. Co., Dunellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.
- Wallace Supplies Mfg. Co., Chicago

Benders and Cutters, Bar

- *Koehring Co., Milwaukee, Wis.
- *Ransome Concrete Machy. Co., Dunellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.
- Wallace Supplies Mfg. Co., Chicago
- Bending Machines, Pipe
- American Pipe Bending Mach. Co., Boston
- Buffalo Forge Co., Buffalo, N. Y.
- Wallace Supplies Mfg. Co., Chicago
- Watson-Stillman Co., New York

Bins, Storage

- *Austin-Western Rd. Machy. Co., Chicago
- *Blaw-Knox Co., Pittsburgh, Pa.
- *Burch Corp., The, Crestline, Ohio
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- *Pioneer Gravel Eq. Mfg. Co., Minneapolis
- Beaumont Co., R. H., Philadelphia
- Birmingham Tank Co., Birmingham, Ala.
- Canton Art Metal Co., Canton, Ohio
- Erie Steel Const. Co., Erie, Pa.
- Fairfield Engg. Co., Marion, Ohio
- Iowa Mfg. Co., Cedar Rapids, Iowa

EDGAR J. BUTTENHEIM
President

THEODORE REED KENDALL
Editor

O. E. POTTER
Associate Editor

P. C. FOX
Asst. to President

HERBERT K. Saxe
Treasurer

MYRON MacLEOD
Advertising Manager

Vol. XXII

No. 6

Contractors and Engineers Monthly

June,

1931

Published Monthly at 470 Fourth Ave., New York, by Bittenheim-Dix Publishing Corporation.

Daily News Plaza, Chicago
Tom Dix, Vice President

642 Hanna Building, Cleveland
George Conover, Manager

TABLE OF CONTENTS

ACCOUNTING		A Front Spring Rocker for Trucks.....	106
Application of Overhead as an Allowable Tax Deduction	67	Accessories for Road and Bridge Construction.....	106
AIRPORT CONSTRUCTION		Light-Weight Fabric Traffic and Warning Signs.....	110
Contracting Units in Airport Construction.....	54	Oil-Burning Rivet-Heating Forges Operated by Com- pressed Air	110
BRIDGE CONSTRUCTION		PUMPS	
Handling 57-Ton Plate Girders with Minimum Delay to Traffic	53	A High-Speed Trailer-Mounted 4 Inch Centrifugal Pump	88
BULK CEMENT		READY-MIXED CONCRETE EQUIPMENT	
Have You Considered Bulk Cement for Your Paving Jobs?	71	A Conveyor for Delivering Ready-Mixed Concrete.....	88
CONSTRUCTION BRIEFS		A New Method of Hauling Ready-Mixed Concrete and Mixing En Route.....	94
How the Other Fellow Did it.....	60	ROAD MACHINERY	
CONSTRUCTION INDUSTRY NEWS		A New Shoulder-Finishing Machine.....	92
News of Manufacturers and Trade Associations.....	87	A Combination Oil-Burning Tool Heater and Tar Kettle	92
THE CONSULTING ENGINEER		A New Type of Leaning Wheel Grader.....	94
News of Consultants in the Civil Engineering Field....	75	A Spreader Attachment for Dump Trucks.....	96
DISTRIBUTORS' BULLETIN BOARD		A Truck-Grader Which Reverses.....	98
Distributors Who Have Recently Announced Changes in Their Accounts	87	An Automatic Rotary Fresno.....	102
THE EDITOR COMMENTS		Machines for Installing Both Transverse and Longi- tudinal Joints in Concrete Roads.....	104
Personal Observations and Reflections.....	74	Bucket Excavator for Grading.....	108
EQUIPMENT AND MATERIALS		A Self-Loading Scraper.....	110
AIR COMPRESSORS		TRACTORS	
A Motor Truck with Built-in Air Compressor.....	90	A Sturdy Small Tractor.....	100
ASPHALT MACHINERY		TRUCKS, MOTOR	
A Pressure Sprayer for Asphalt Emulsion Main- tenance Work	89	Truck Models in Three Wheelbase Sizes.....	96
A Portable Road-Type Asphalt Plant.....	103	EXCAVATION	
BATCHERS		Excavation of Indian Mounds Proves Interesting.....	52
A Multiple Material Weigh Batcher.....	102	Handling Excavation Beneath a Street Railway Track and Elevated Structure	65
CRUSHING AND SCREENING PLANTS		ITEMS OF INTEREST	
Improved Revolving Screens.....	90	Nevada Contractors Must Pay License Fees.....	54
A Portable Rock Crushing Plant.....	98	What Part of the Gas Tax Reaches the Highway?.....	59
ENGINES, OIL, GAS AND DIESEL		Launching an 1,800-Foot Sewer Outfall.....	63
A New Series of Engines.....	104	California Seeks Cooperation of Contractors in Employ- ing U. S. Citizens.....	70
EXCAVATORS		The Use of Ready-Mixed Concrete.....	72
An Improved 1/2-Yard Shovel.....	87	Literature Free for Contractors.....	112
A 3/4-Yard Shovel with No Tail Swing.....	106	LAW AND LITIGATION	
HOISTS AND WINCHES		Legal Points for Contractors.....	64
A New Hoist with Welded Frame.....	96	PIPE LAYING	
A New Size Air Hoist.....	93	Underwater Crossing Connects New Reservoirs with New Haven	47
MATERIAL HANDLING EQUIPMENT		ROAD CONSTRUCTION	
A Loader for Rock, Dirt or Muck.....	89	Organization for Handling a 16.2-Mile Concrete Road Job	50
A Small Bucket Loader Handles Bulk Cement.....	91	Have You Clocked Your Concrete Paving Operations?	
MISCELLANEOUS		Part II	55
An Improved Joint for Concrete Sewer Pipe.....	88	An Unusual Subgrader Job.....	59
Stump Puller Adapted to Tractor.....	90	A Snappy Concreting Organization.....	61
High Pressure Water Hose for Construction Work..	91	Resurfacing by Contract.....	69
Hot-Galvanized Guard Posts for Highways.....	92	SAFETY IN CONSTRUCTION	
Recording Busy and Idle Truck Time.....	100	Guard Your Blasting Caps.....	63
A Waterproof Building Paper for Curing Concrete Roads and Sidewalks.....	102	WHO'S WHO IN CONSTRUCTION	
A Device for Removing Oil and Water from Air Lines	104	Reports from Active Contractors.....	73

Where to Purchase

A comprehensive classification of the leading machinery and supply manufacturers arranged for the convenience of contractors, engineers and public officials who may wish to secure information about construction equipment. A star (*) before the manufacturer's name indicates that his advertisement appears in this issue. The Index of Advertisers faces the inside back cover. When writing to manufacturers please mention **CONTRACTORS & ENGINEERS MONTHLY**.

This index is published as an aid to the reader, but the publishers assume no responsibility for errors or omissions

Acetylene Welding Apparatus (See Welding Apparatus)

Admixtures, Concrete, Accelerating

- *Acqua-Pruf, Inc., New York
- *Columbia Products Co., Barberton, Ohio
- *Dow Chemical Co., Midland, Mich.
- *Solway Sales Corp., New York
- Master Builders Co., Cleveland, Ohio
- Michigan Alkali Co., New York
- Super Concrete Emulsions, Ltd., Pittsburgh, Pa.
- Truscon Laboratories, Detroit, Mich.

Admixtures, Concrete, for Workability

- Colloy Products Co., St. Louis, Mo.
- Johns-Manville Co., New York
- Super Concrete Emulsions, Ltd., Pittsburgh, Pa.

Aerial Tramways (See Tramways)

Agitator Bodies, Concrete (See Bodies)

Air Compressors (See Compressors)

Air Compressor Tanks (See Tanks)

Air Hose (See Hose)

Air Hose Couplings (see Couplings)

Air Lift Pumps (see Pumps)

Asphalt (See also Asphalt, Rock)

- *Standard Oil Co. of Ind., Chicago
- *Standard Oil Co. of N. Y., New York
- Asphalt Institute, The, New York
- Atlantic Refining Co., Philadelphia
- Barber Asphalt Co., Philadelphia
- Gulf Refining Co., Pittsburgh, Pa.
- Pioneer Asphalt Co., Lawrenceville, Ill.
- Sinclair Refining Co., Chicago
- Standard Oil Co. of Cal., San Francisco
- Standard Oil Co. of La., New Orleans, La.
- Standard Oil Co. of N. J., Newark, N. J.
- Sun Oil Co., Pittsburgh, Pa.
- Texas Co., The, New York

Asphalt Block Paving (See Block Paving)

Asphalt Cutters (See Asphalt Tools, and Tools, Pneumatic)

Asphalt Distributors (See Distributors)

Asphalt, Emulsified

- American Bitumuls Co., Baltimore, Md.
- Flinn-kote Roads, Inc., Boston
- Headley Emulsified Prod. Co., Philadelphia

Asphalt for Curing Concrete

- *McEverlast, Inc., Los Angeles, Calif.
- Barber Asphalt Co., Philadelphia

Asphalt Kettles (See Kettles)

Asphalt Mixtures, Cold-Laid

- Amiesite Asphalt Co. of Amer., Philadelphia
- Colprovia Roads, Inc., New York

Asphalt Plants

- *Austin-Western Road Machy. Co., Chicago
- *Chausse Oil Burner Co., Elkhart, Ind.
- *Hetherington & Berner, Indianapolis, Ind.
- *Simplicity System Co., Chattanooga, Tenn.
- American Fin-Mix Co., Chicago
- Asphalt Equipment Co., Scottsdale, Pa.
- Barber Asphalt Co., Philadelphia
- Charleroi Iron Works, Charleroi, Pa.
- Cumner & Son Co., F. D., Cleveland, O.
- Farasey Mfg. Co., J. D., Cleveland, O.
- Iowa Mfg. Co., Cedar Rapids, Iowa
- MacLeod Co., Cincinnati, O.
- Madsen Iron Works, Huntington Park, Calif.
- Merriman Asphalt Plant, Inc., Lima, Ohio
- Warren Bros. Co., Boston, Mass.
- Western Wheeled Scraper Co., Aurora, Ill.

Asphalt Pouring Pots (See Pots)

Asphalt Road Finishers (See Finishers)

Asphalt, Rock

- Kentucky Rock Asphalt Co., Louisville, Ky.
- Natural Rock Asphalt Corp., Louisville, Ky.
- Ohio Valley Rock Asphalt Co., Louisville, Ky.
- Utah Rock Asphalt Corp., Pueblo, Colo.
- Uvalde Rock Asphalt Co., San Antonio, Texas

Asphalt Rollers (See Rollers)

Asphalt Sprayers, Hand (See Sprayers)

Asphalt Spreaders (See Spreaders)

Asphalt Surface Heaters (See Heaters)

Asphalt Tools

- *Chausse Oil Burner Co., Elkhart, Ind.
- *Littleford Bros., Cincinnati, Ohio
- Aeroil Burner Co., West New York, N. J.
- American Fork & Hoe Co., Cleveland, O.
- American Steel Works, Kansas City, Mo.
- Barber Asphalt Co., Philadelphia
- Cumner & Sons Co., F. D., Cleveland, O.
- Warren Bros. Co., Boston, Mass.

Augers, Earth, Power, Horizontal

- Hydrauger Corp., Ltd., San Francisco, Calif.
- Young Engine Corp., Canton, Ohio

Augers, Post-Hole, Power

- Cook Co., A. D., Lawrenceburg, Ind.
- Highway Trailer Co., Edgerton, Wis.
- Loomis Machine Co., Tiffin, Ohio
- Salem Tool Co., Salem, Ohio
- Specialty Device Co., Cincinnati, O.
- Utility Supply Co., Clintonville, Wis.
- W-K-M Co., Houston, Texas

Backfillers

- *Austin Machy. Corp., Muskegon, Mich.
- *Bay City Shovels, Inc., Bay City, Mich.
- *General Wheelbarrow Co., Cleveland
- *General Excavator Co., Marion, Ohio
- *Keystone Driller Co., Beaver Falls, Pa.
- *Lansing Co., Lansing, Mich.
- *LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa
- Baker Mfg. Co., Springfield, Ill.
- Blair Mfg. Co., W. M., Chicago
- Buckeye Traction Ditcher Co., Findlay, O.
- Bucyrus-Erie Co., So. Milwaukee, Wis.
- Byers Machine Co., Ravenna, Ohio
- Cleveland Trencher Co., Euclid, Ohio
- Construction Machy. Co., Waterloo, Iowa
- Good Roads Machy. Co., Inc., Kennett Sq., Pa.
- Harnischfeger Corp., Milwaukee, Wis.
- Insley Mfg. Co., Indianapolis, Ind.
- Koehring Co., Milwaukee, Wis.
- Link-Belt Co., Chicago
- Miami Trailer-Scraper Co., Troy, Ohio
- Parsons Co., Newton, Iowa
- Sidney Steel Scraper Co., Sidney, Ohio
- Slusser-McLean Scraper Co., Sidney, Ohio
- Star Drilling Machine Co., Akron, Ohio
- Universal Power Shovel Co., Detroit, Mich.
- Western Wheeled Scraper Co., Aurora, Ill.
- Williamette-Ersted Co., Portland, Ore.
- W-K-M Co., Houston, Texas

Bags, Paper, for Cement

- Arkell & Smith, Canajoharie, N. Y.
- Phillips Co., Thos., Akron, Ohio
- Raymond Bag Co., Middletown, Ohio
- St. Regis Paper Co., New York
- Union Bag & Paper Co., New York

Bag Trucks (See Trucks)

Baling Presses (See Presses)

Bar Benders and Cutters (See Benders)

Barricades (See also Horses)

- Cleveland Steel Spec. Co., Cleveland, O.

Bar Ties (See Ties)

Batch Boxes (See Boxes)

Batchers

- *Blaw-Knox Co., Pittsburgh, Pa.
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- Barber-Greene Co., Aurora, Ill.
- Beaumont Co., R. H., Philadelphia
- Erie Steel Const. Co., Erie, Pa.
- Johnson Co., C. S., Champaign, Ill.
- MacLeod Co., Cincinnati, Ohio
- Madsen Iron Works, Huntington Pk., Calif.
- Smith Co., T. L., Milwaukee, Wis.
- Superior Engineering Co., Warren, Ohio

Bearings, Ball

- Ball & Roller Bearing Co., Danbury, Conn.
- Fafnir Bearing Co., New Britain, Conn.
- Gwilliam Co., Brooklyn, N. Y.
- Haynes Stellite Co., Kokomo, Ind.
- New Departure Mfg. Co., Bristol, Conn.
- S K F Industries, New York
- Strom Bearings Co., Chicago

Bearings, Roller

- Gwilliam Co., Brooklyn, N. Y.
- Hyatt Roller Bearing Co., Harrison, N. J.
- Insley Mfg. Co., Indianapolis, Ind.
- S K F Industries, New York
- Timken Roller Bearing Co., Canton, Ohio

Belt Conveyors (See Conveyors)

Belt Dressing (See Dressing)

Belts, Power Transmission

- *Chain Belt Co., Milwaukee, Wis.
- Buckner Process, Inc., Worcester, Mass.
- Dayton Rubber Mfg. Co., Dayton, Ohio
- Falls Clutch & Machy. Co., Cuyahoga Falls, O.
- Worthington Pump & Machy. Corp., New York

Benders and Cutters, Bar

- *Ransome Concrete Machy. Co., Dunellen, N. J.
- Buffalo Forge Co., Buffalo, N. Y.
- Concrete Steel Co., New York
- Hinman & Co., D. A., Sandwich, Ill.
- Kardong Bros., Minneapolis, Minn.
- Koehring Co., Milwaukee, Wis.
- Wallace Supplies Mfg. Co., Chicago

Bending Machines, Pipe

- American Pipe Bending Mach. Co., Boston
- Buffalo Forge Co., Buffalo, N. Y.
- Wallace Supplies Mfg. Co., Chicago
- Watson-Stillman Co., New York

Bins, Storage

- *Austin-Western Rd. Machy. Co., Chicago
- *Blaw-Knox Co., Pittsburgh, Pa.
- *Burch Corp., The, Crestline, Ohio
- *Butler Bin Co., Waukesha, Wis.
- *Heltzel Stl. Form & Ir. Co., Warren, Ohio
- *Pioneer Gravel Equip. Mfg. Co., Minneapolis
- Beaumont Co., R. H., Philadelphia
- Birmingham Tank Co., Birmingham, Ala.
- Canton Art Metal Co., Canton, Ohio
- Erie Steel Const. Co., Erie, Pa.
- Fairfield Engg. Co., Marion, Ohio
- Iowa Mfg. Co., Cedar Rapids, Iowa



012.

0
mk

2.

is